



Figure 7.—Sonic Flow Choking

APPENDIX B TO SUBPART E OF PART 89—TABLES

TABLE 1—8-MODE TEST CYCLE FOR VARIABLE-SPEED ENGINES

Test segment	Mode number	Engine speed ¹	Observed torque ² (percent of max. observed)	Minimum time in mode (minutes)	Weighting factors
1	1	Rated	100	5.0	0.15
1	2	Rated	75	5.0	0.15
1	3	Rated	50	5.0	0.15
1	4	Rated	10	5.0	0.10
2	5	Int	100	5.0	0.10
2	6	Int	75	5.0	0.10
2	7	Int	50	5.0	0.10
2	8	Idle	0	5.0	0.15

¹Engine speed (non-idle): ± 2 percent of point. Engine speed (idle): Within manufacturer's specifications. Idle speed is specified by the manufacturer.

²Torque (non-idle): Throttle fully open for 100 percent points. Other non-idle points: ± 2 percent of engine maximum value. Torque (idle): Throttle fully closed. Load less than 5 percent of peak torque.

TABLE 2—5-MODE TEST CYCLE FOR CONSTANT-SPEED ENGINES

Mode number	Engine ¹ Speed	Observed torque ² (percent of max. observed)	Minimum time in mode (minutes)	Weighting factors
1	Rated	100	5.0	0.05
2	Rated	75	5.0	0.25
3	Rated	50	5.0	0.30

TABLE 2—5-MODE TEST CYCLE FOR CONSTANT-SPEED ENGINES—Continued

Mode number	Engine ¹ Speed	Observed torque ² (percent of max. observed)	Minimum time in mode (minutes)	Weighting factors
4	Rated	25	5.0	0.30
5	Rated	10	5.0	0.10

¹ Engine speed: ± 2 percent of point.² Torque: Throttle fully open for 100 percent point. Other points: ± 2 percent of engine maximum value.

TABLE 3—6-MODE TEST CYCLE FOR ENGINES RATED UNDER 19 kW

Mode number	Engine speed ¹	Observed torque ² (percent of max. observed)	Minimum time in mode (minutes)	Weighting factors
1	Rated	100	5.0	0.09
2	Rated	75	5.0	0.20
3	Rated	50	5.0	0.29
4	Rated	25	5.0	0.30
5	Rated	10	5.0	0.07
6	Idle	0	5.0	0.05

¹ Engine speed (non-idle): ± 2 percent of point. Engine speed (idle): Within manufacturer's specifications. Idle speed is specified by the manufacturer.² Torque (non-idle): Throttle fully open for operation at 100 percent point. Other nonidle points: ± 2 percent of engine maximum value. Torque (idle): Throttle fully closed. Load less than 5 percent of peak torque.

TABLE 4—4-MODE TEST CYCLE FOR PROPULSION MARINE DIESEL ENGINES

Mode number	Engine speed ¹ (percent of max. observed)	Observed power ² (percent of max. observed)	Minimum time in mode (minutes)	Weighting factors
1	100	100	5.0	0.20
2	91	75	5.0	0.50
3	80	50	5.0	0.15
4	63	25	5.0	0.15

¹ Engine speed: ± 2 percent of point.² Power: Throttle fully open for operation at 100 percent point. Other points: ± 2 percent of engine maximum value.

[63 FR 57019, Oct. 23, 1998]

Subpart F—Selective Enforcement Auditing

§ 89.501 Applicability.

The requirements of subpart F are applicable to all nonroad engines subject to the provisions of subpart A of part 89.

[59 FR 31335, June 17, 1994. Redesignated at 63 FR 56996, Oct. 23, 1998]

§ 89.502 Definitions.

The definitions in subpart A of this part apply to this subpart. The following definitions also apply to this subpart.

Acceptable quality level (AQL) means the maximum percentage of failing engines that can be considered a satisfac-

tory process average for sampling inspections.

Configuration means any subclassification of an engine family which can be described on the basis of gross power, emission control system, governed speed, injector size, engine calibration, and other parameters as designated by the Administrator.

Inspection criteria means the pass and fail numbers associated with a particular sampling plan.

Test engine means an engine in a test sample.

Test sample means the collection of engines selected from the population of an engine family for emission testing.

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